Met Office 3-month Outlook

Period: February 2016 - April 2016 Issue date: 21.01.16

The forecast presented here is for February and the average of the February-March-April period for the United Kingdom as a whole.
The forecast for February will be superseded by the long-range information on the public weather forecast web page (www.metoffice.gov.uk/public/weather/forecast/#?tab=regionalForecast), starting from 29 January 2016.

This forecast is based on information from observations, several numerical prediction systems and expert judgement.

SUMMARY - TEMPERATURE:

For February predictions are that above-average temperatures are slightly more probable than below-average. The likelihood of a prolonged spell of cold weather is relatively low.

Predictions for UK-average temperature for the whole of the period (February-March-April) indicate that below-average temperature is more probable than above-average.

Overall, the probability that the UK-average temperature for February-March-April will fall into the coldest of our five categories is between 20 and 25% and the probability that it will fall into the warmest of our five categories is between 10 and 15% (the 1981-2010 probability for each of these categories is 20%).

CONTEXT:

A strong, mature El Niño event in the tropical Pacific Ocean continues, and will remain a strong and significant feature during this forecast period which will continue to have wide reaching global impacts. This El Niño is comparable in strength to the 1997-98 and 1982-83 events and ranks among the strongest on record.

For the UK region, the primary effect is to increase the probability of a significant ridge of pressure across the Mid-Atlantic during this period. There is also a strong link between El Niño and an increased probability of a sudden stratospheric warming (SSW) event occurring. These events disrupt the stratospheric polar vortex and more often than not, bring cold weather to the UK. These signals correspond to the negative phase of the North Atlantic Oscillation (NAO), which is associated with generally colder and drier-than-average conditions across the UK.

Shorter-range forecasts already indicate imminent weakening of the polar vortex. The timing of an SSW event and impacts on the UK are uncertain; this could occur between early February and early March.

The Madden Julian Oscillation (MJO) is the major fluctuation in tropical weather on weekly to monthly timescales. The MJO can be characterised as an eastward moving 'pulse' of cloud and rainfall near the equator that typically recurs every 30 to 60 days. The MJO is expected to reach a phase in early February which is conducive to a negative phase of the NAO in mid- to late-February.

The Quasi-Biennial Oscillation (QBO), an oscillation of the equatorial winds in the stratosphere, remains in a strong westerly phase. The QBO influences winter conditions over Western Europe by modulating the strength of the stratospheric polar vortex and thereby the phase of the NAO at the surface. The westerly phase of the QBO tends to favour a stronger stratospheric polar vortex, leading to a higher likelihood of a positive phase of the NAO. The QBO tends to have more influence in the early winter and its effect is expected to diminish during this outlook period.

Positive sea surface anomalies along the coastline of NE USA and SE Canada, plus cooler values across the central Atlantic, would suggest a slight northerly shift in the pressure pattern and an increase in the likelihood of a westerly flow towards the UK (positive NAO).

There are a number of competing factors that will shape the evolution of the weather across the UK during this period. El Niño and the risk of SSW events are expected to be the most influential.

At the start of the 3-month period, there is an increased chance of a northwesterly flow across the UK. This would not be as cold as a flow from the north or east, which is normally required to get the coldest winter conditions, but at the same time not as mild as a westerly or south-westerly flow. As such, we expect both milder and colder conditions at times. Spells of prolonged cold weather across the UK appear unlikely. Given the possibility of a sudden stratospheric warming event in February or early March, the chances of cold northerly or easterly winds affecting the UK increase later in the period, with the greatest risk of cold weather impacts in March. As a result, for the period as a whole there is a bias to slightly colder-than-average conditions.

The left hand graph of figure T2 is for February and shows a slightly higher probability of above-average-conditions compared to below-average- conditions.

The right-hand graph of figure T2 is for February-March-April and shows a slight shift towards colder-than-average-conditions. The greatest risk of cold weather impacts, such as snow, is during late February and March.

Fig T1

3-month UK outlook for temperature in the context of the observed annual cycle

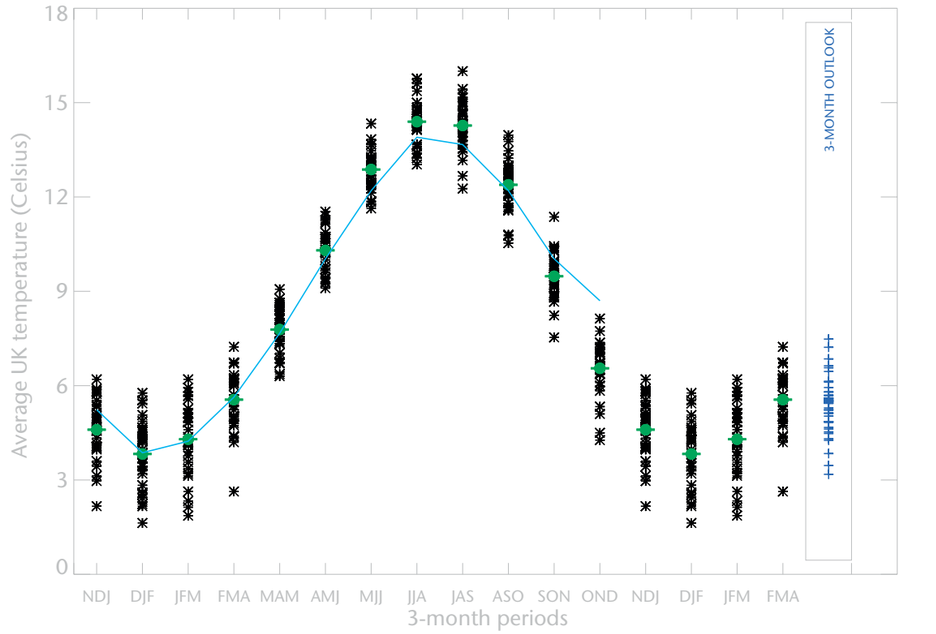


Fig T2

1-month and 3-month UK outlook for temperature in the context of observed climatology

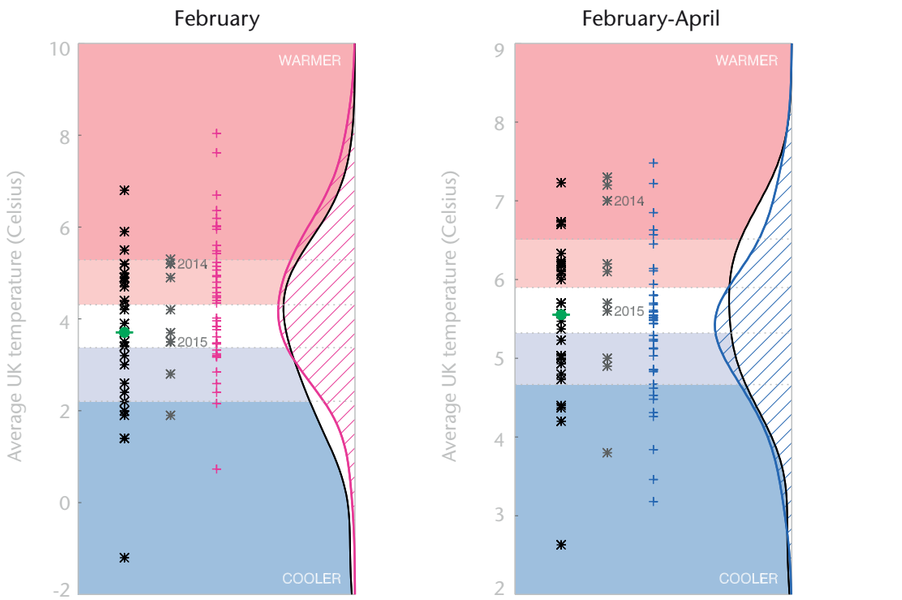
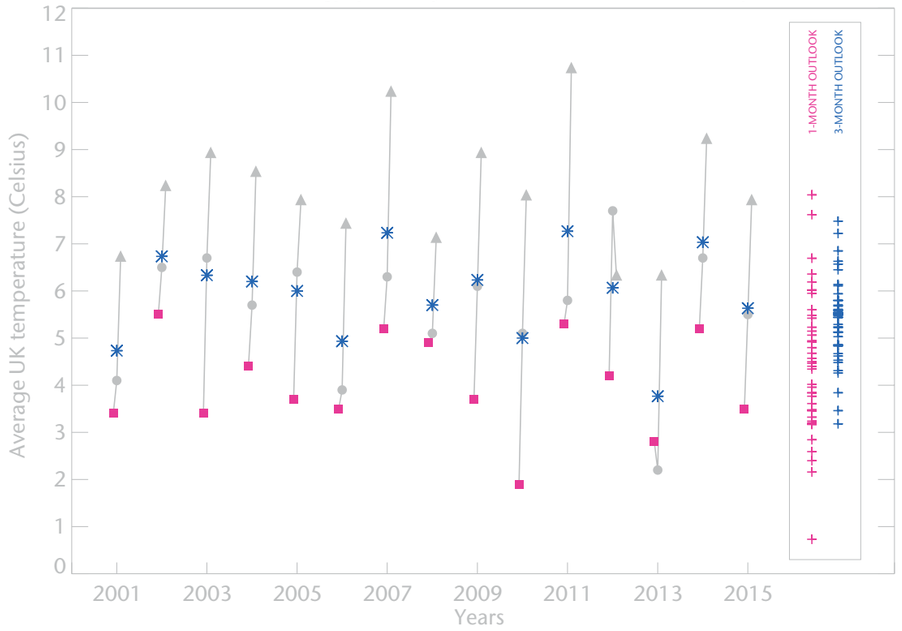


Fig T3

1-month and 3-month UK outlook for temperature in the context of recent climatology: year-to-year and within-season variability


Average UK temperature (Celsius)
2001 2003 2005 2007 2009 2011 2013 2015
Years
1-MONTH OUTLOOK
3-MONTH OUTLOOK
Observed averages: Feb-Apr Feb Mar Apr
2016 outlook: + Feb + Feb-Apr

This Outlook provides an indication of possible temperature and rainfall conditions over the next 3 months. It is part of a suite of forecasts designed for contingency planners.
The Outlook should not be used in isolation but should be used with shorter-range and more detailed (30-day, 15-day and 1-to-5-day) forecasts and warnings available to the contingency planning community from the Met Office.